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Olson

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(54) **SPORTS TRAINING DEVICE**

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(51) **Int. Cl.**
A63B 69/36 (2006.01)

(52) **U.S. Cl.** **473/269**; 473/272

(58) **Field of Classification Search** 473/150, 473/160, 161, 207, 217, 218, 266, 269–273, 473/278; 434/247, 252
See application file for complete search history.

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(57) **ABSTRACT**

A sports training device is provided that conveys a perceptible cue to a user indicative of a weight transfer event for evaluating timing correctness of such weight transfer event. The device includes an enclosure having a base chamber defined therein and top wall upon which a user stands or places a foot during use. The enclosure flexes or deforms during use, while an amount of user weight supported by the enclosure changes. As the enclosure flexes or deforms, the device conveys the perceptible cue as an audible and/or visual indication of, e.g., the initiate of the weight transfer event.

15 Claims, 7 Drawing Sheets

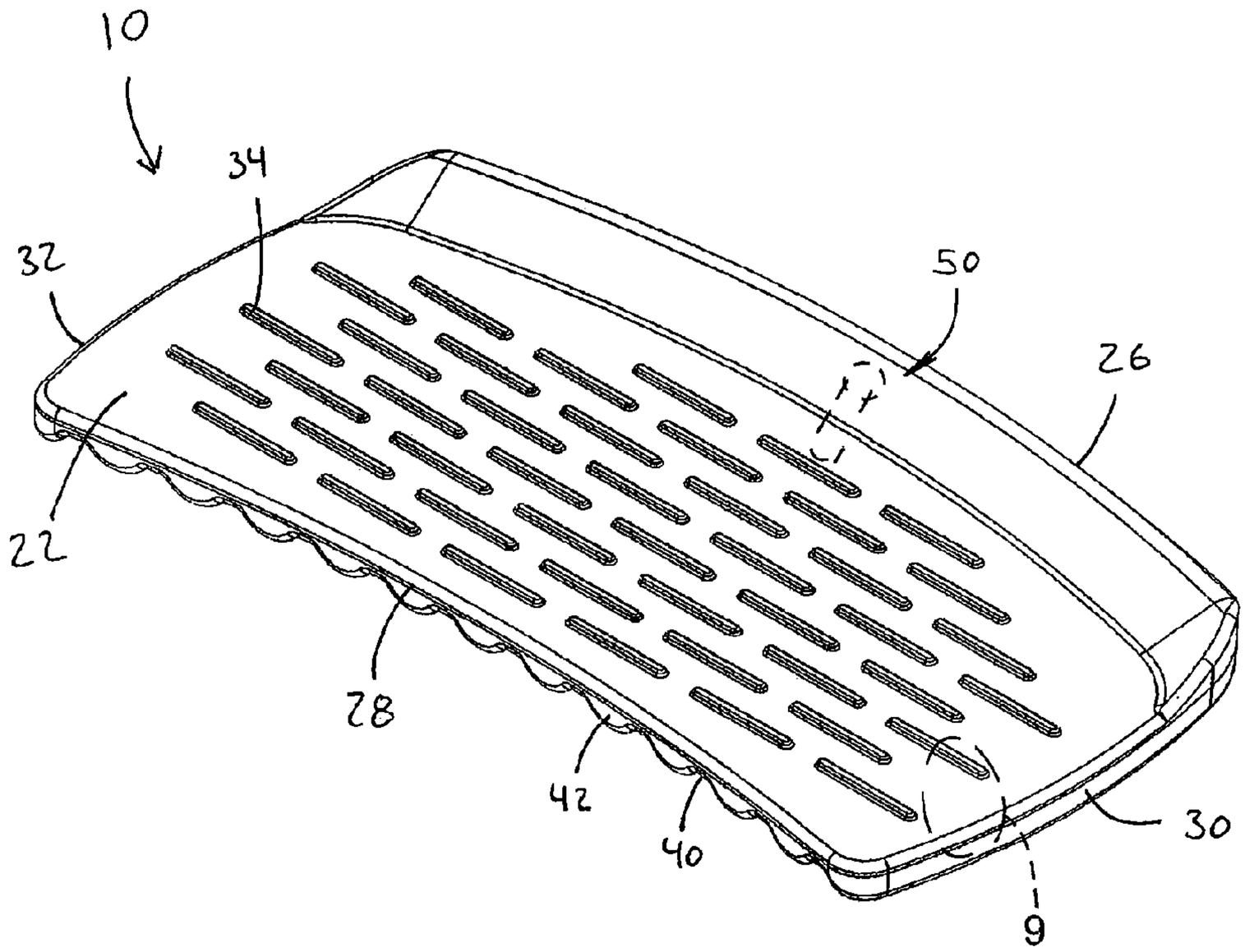


FIG. 1

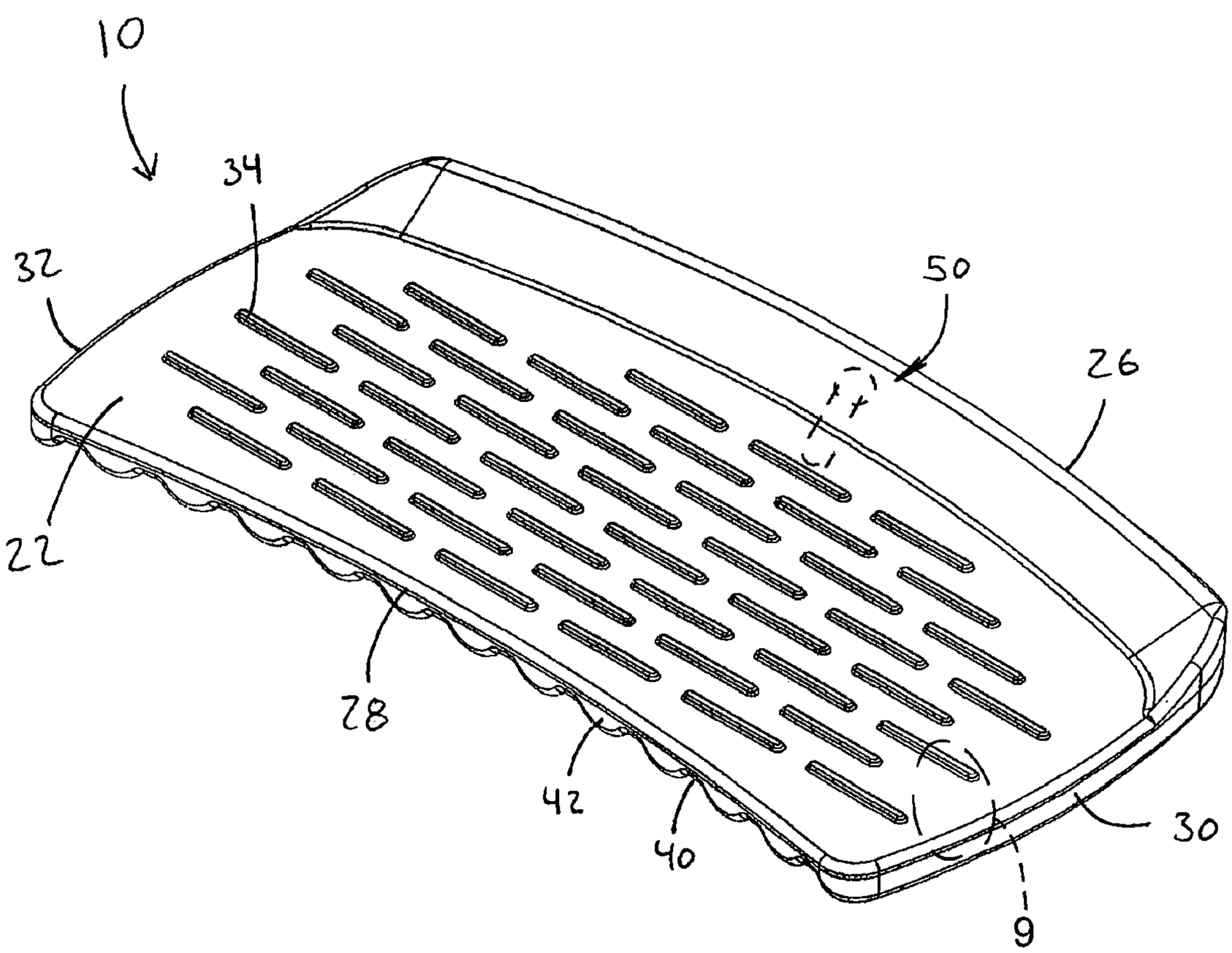


FIG. 2

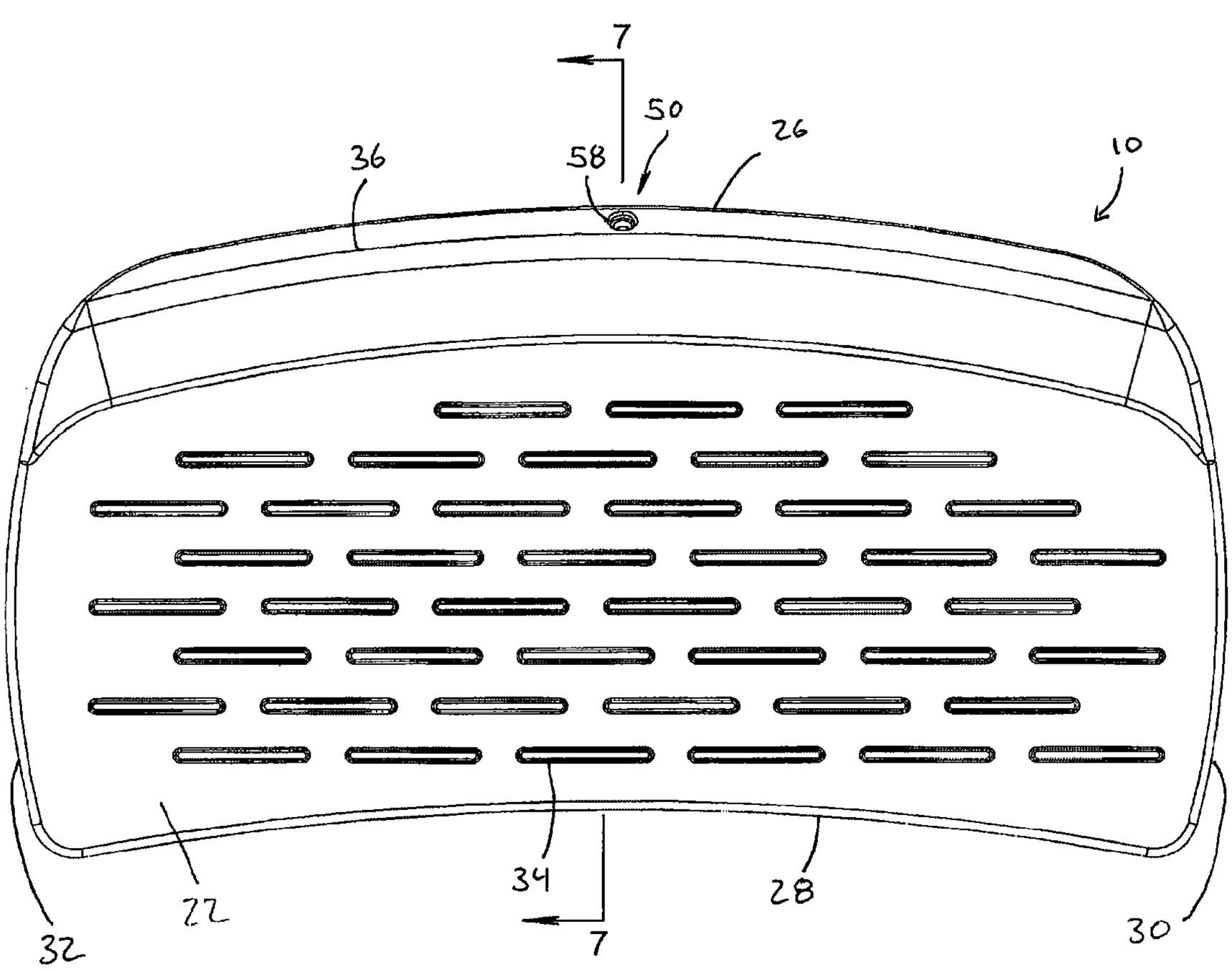


FIG. 3

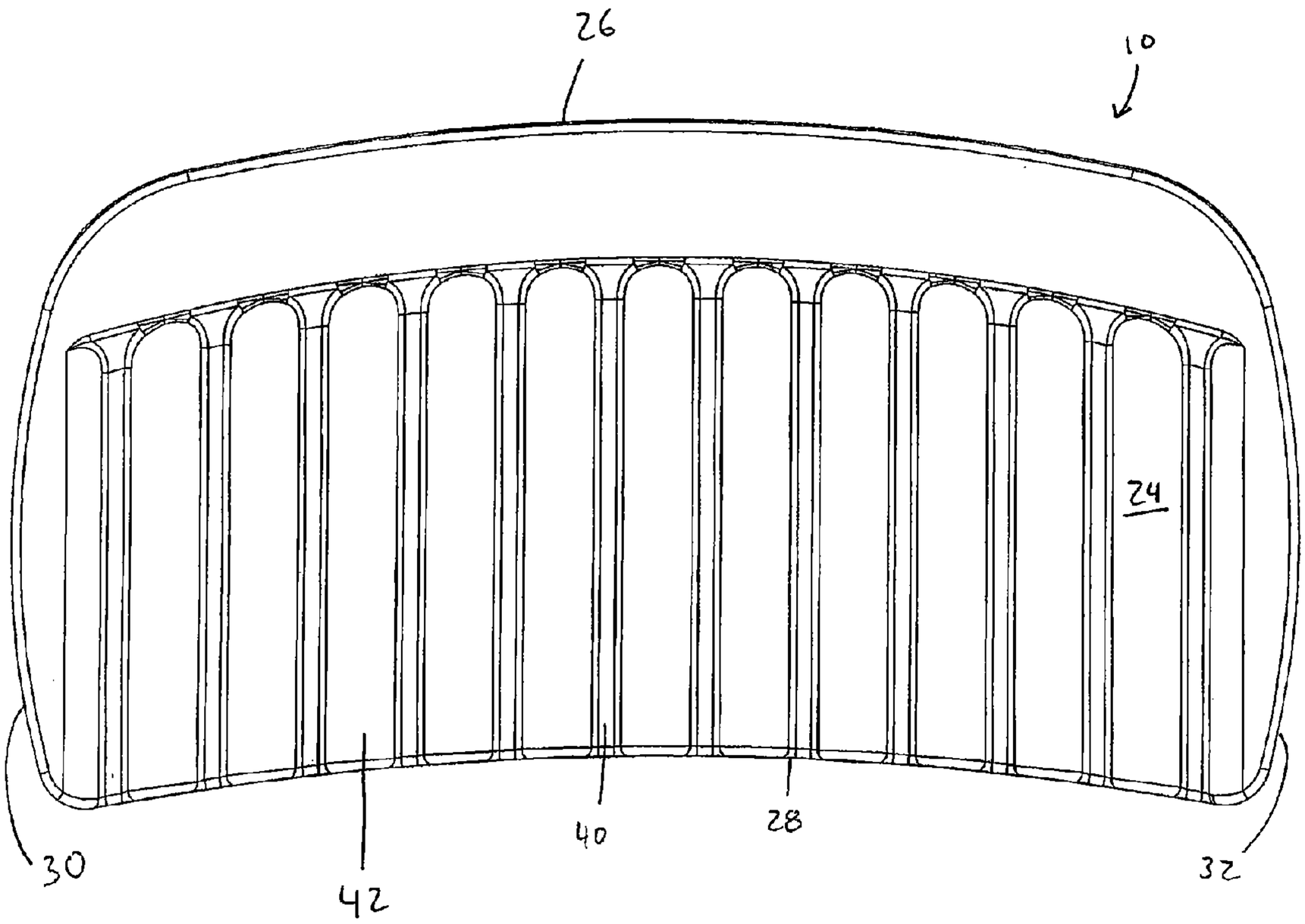


FIG. 4

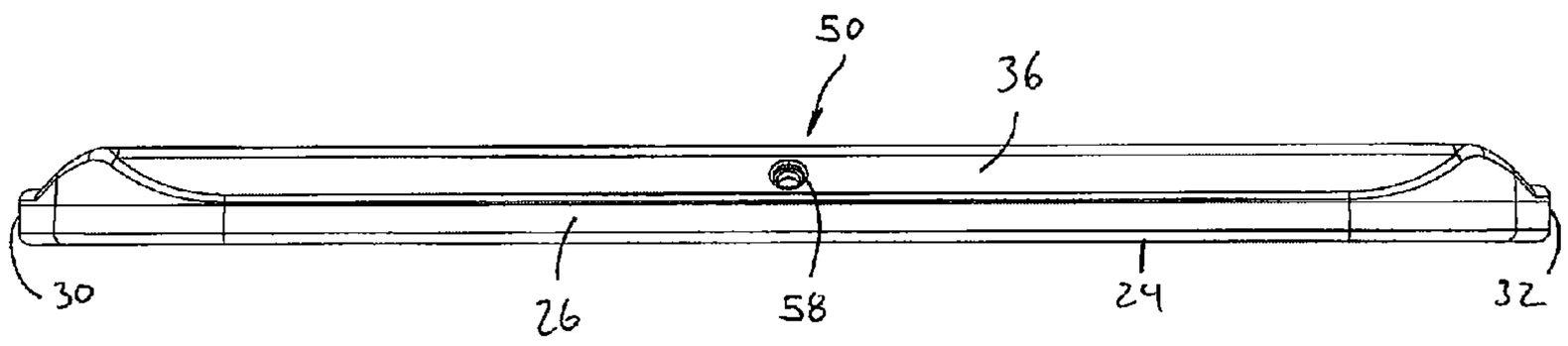


FIG. 5

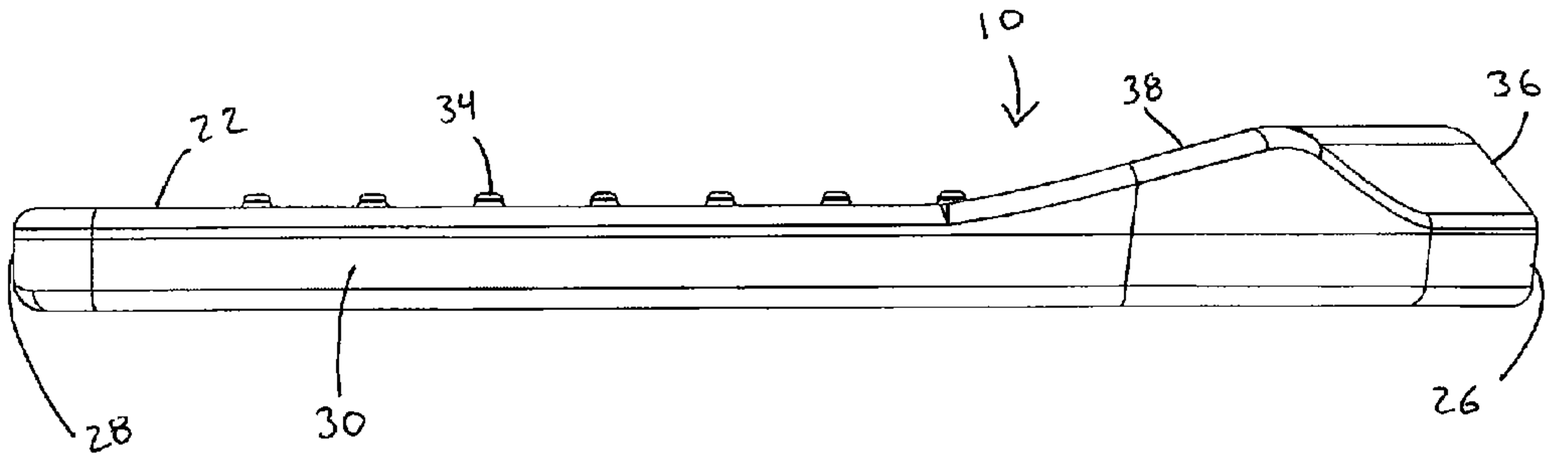


FIG. 6

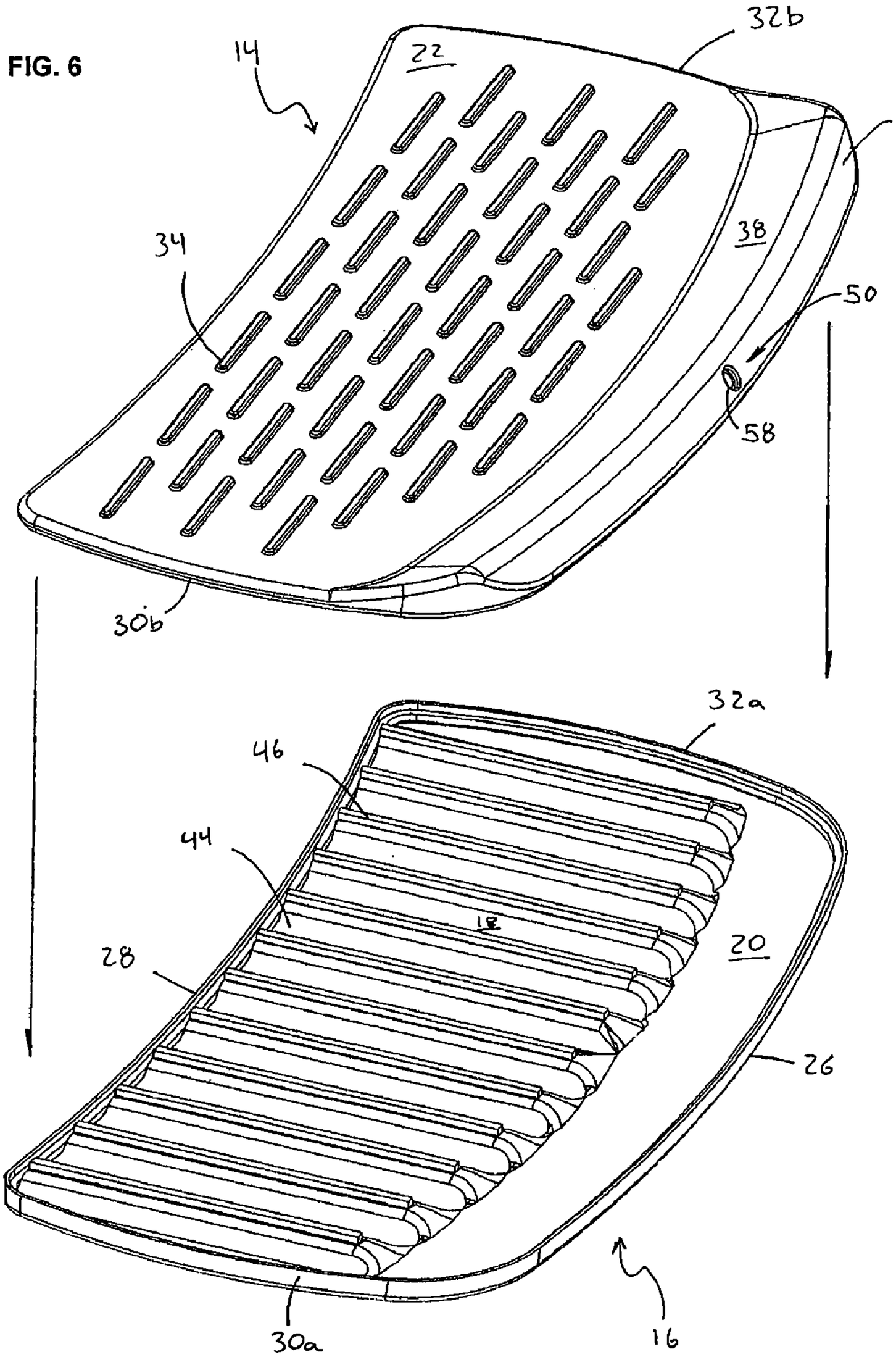
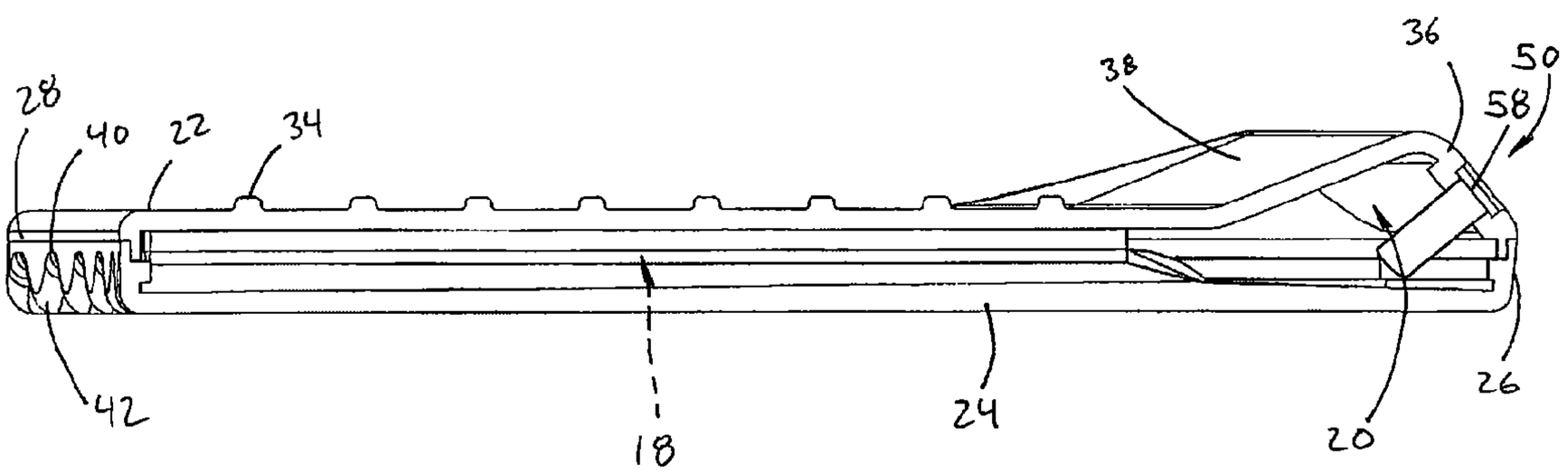


FIG. 7


28
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24
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26

FIG. 8

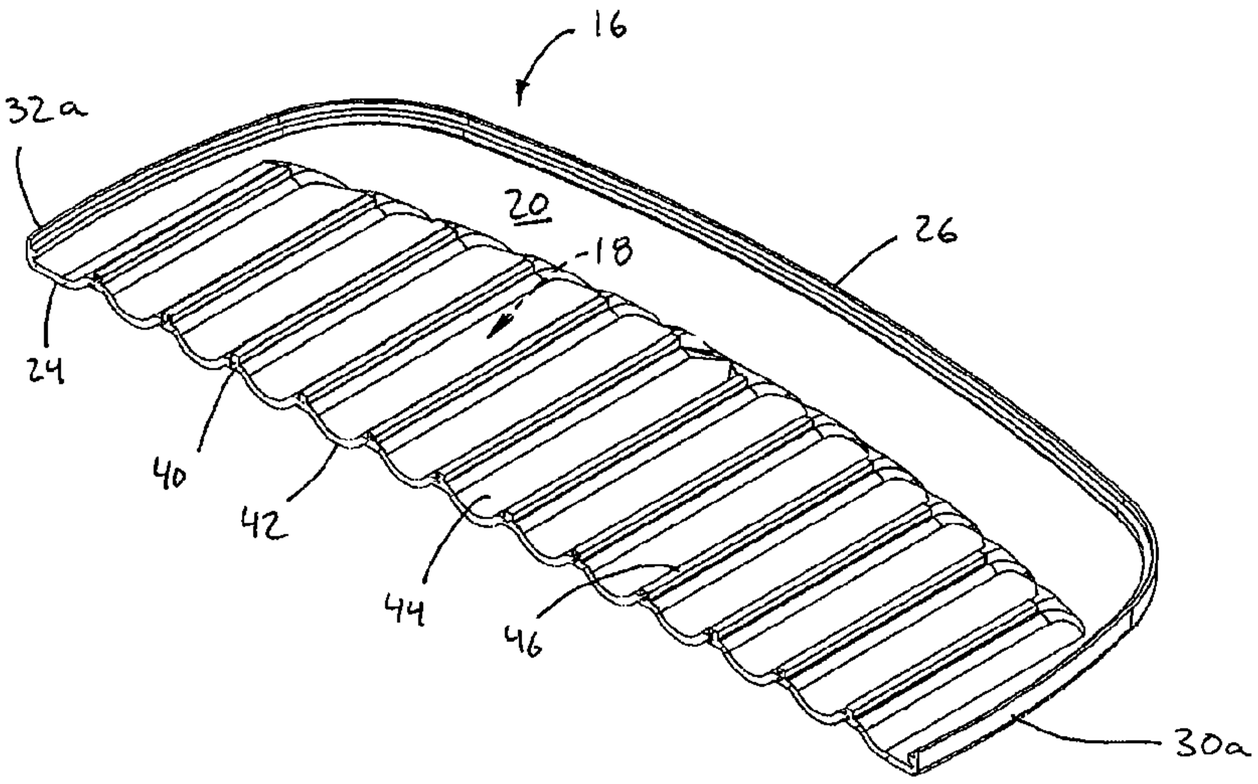
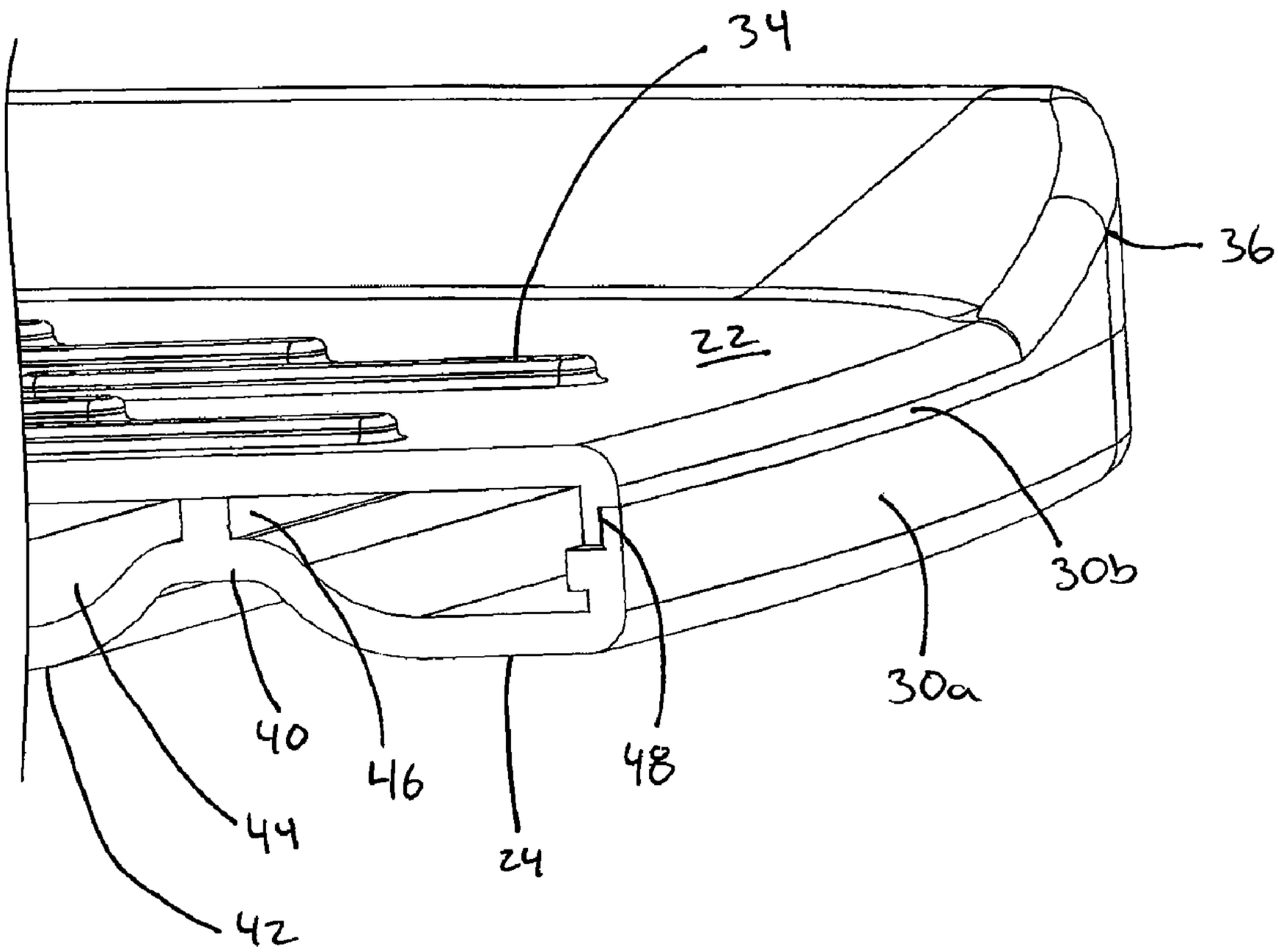

16
32a
20
18
26
24
40
42
44
46
30a

FIG. 9



SPORTS TRAINING DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of and priority to U.S. Provisional Patent Application Ser. No. 61/142,253, filed on Jan. 2, 2009, the entirety of which is expressly incorporated by reference herein.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates generally to sports training devices and, more particularly, to a sports training device providing an audible indication of an individual's body weight distribution and full transfer during an athletic activity.

2. Discussion of the Related Art

A number of different sports or athletic activities require that the participant correctly shift one's weight to execute a particular stroke or swing. For example, during the golf swing, the golfer begins at an address position wherein the golfer's weight is generally centered. As the golfer begins the backswing of the golf stroke, however, the golfer's weight begins to shift from a centered position to the golfer's back foot. Once the golfer reaches the top of his or her swing, the golfer begins the downswing by transferring his or her weight to the front foot. After the weight has been shifted, the golfer pivots around the weight-bearing front leg. Finally, after striking the ball, the golfer completes his or her swing with the follow-through while maintaining the weight transfer on the front foot. Proper weight transfer is essential for consistent ball striking, and improper weight transfer is a common problem among less accomplished golfers. For example, many beginning and high handicap golfers tend to exaggerate the initial lateral movement away from the target during the backswing. They then begin the downswing with a turn of the shoulders prior to the necessary move back toward the target, thereby causing inconsistent ball striking, i.e., topping and/or hitting behind the ball. Unfortunately, most golfers do not realize that they are not adequately moving back toward the target during their downswing, and thus they continue to struggle in hitting consistent golf shots. As another example, many golfers complete their weight transfers too early, e.g., far before even completing the backswing and then fall back, again prior to impact, to their back foot.

A number of prior art devices are directed to improving a golfer's weight distribution and transfer during his or her golf swing. For example, U.S. Pat. No. 3,606,341 to Honbarger discloses a foot-holding device attached to the individual's lead foot for securing the lead foot to the ground with a heavy spike and designed to prevent lateral movement away from the target during the course of the golf swing.

U.S. Pat. No. 4,106,771 to Fern discloses a device that is clamped to the instep of an individual's shoe. The device includes a spring plate that produces an audible signal when it experiences a predetermined flexure upon a change in the angular position of the shoe. The device is configured such that the signal is produced as a proper or desired golf swing is at or near completion.

Finally, U.S. Patent Publication No. 20080015042 to Glass discloses a golf aid configured to provide audible feedback to the user as the user begins to sway away from the target during his or her backswing. The device includes a pressure sensor switch that detects an increase in vertical load at the base of the user's 5th metatarsal head. The device activates a speaker to emit an audible signal to alert the user that he or she has swayed away from the target.

These known prior art devices suffer from a number of disadvantages. For example, the device of Honbarger requires that the individual's lead foot be secured to the ground with a heavy spike. This type of device is impractical in most locations including golf courses, driving ranges, and other such practice areas. Further, the heavy spike used to secure the golfer's foot to the ground is potentially dangerous and will undoubtedly damage the ground it is inserted into. The Fern device, on the other hand, emits an audible noise that indicates a change in angle or inclination of a foot but does not emit noise in response to weight transfer. In other words, the device of Fern is configured for indicating proper follow-through rather than indicating weight transfer. Finally, the golf aid disclosed by Glass is configured to audibly indicate an initial weight application thereto, whereby it indicates a start or commencement of, but not an actual weight transfer event. Stated another way, the device of Glass can emit sounds if a majority of the golfer's weight remains on his or her back foot at ball impact, provided that the predetermined amount of weight is applied to the device, whereby it cannot be relied upon to provide an audible signal or cessation of such signal indicative of a completion of a full swing or full weight transfer event.

The need for proper and full weight transfer is not limited to golf, however. In fact, a number of other sports require similar weight transfers. For example, swinging a baseball bat, throwing a baseball or football or swinging a tennis racket requires similar such weight transfers from a participant's back foot to their front foot. As another example, when pitching a baseball, a typical movement includes a long stride toward the plate at the beginning of the swing, followed by the placement of the front foot and the throw coming from the arm of the opposite side of the front foot. Most professional pitchers do not begin moving the throwing arm toward the plate until the front foot has been placed back on the ground and the pitcher's weight has begun being transferred to the leading leg. Many people tend to start moving the throwing arm forward before the leading leg has even touched the ground, thereby bringing about a slower throw.

In light of the foregoing, a sports training device that overcomes these disadvantages and that is generally applicable to any sport activity requiring proper weight transfer is desired. Specifically, a sports training device that is relatively simple and indicates both positive and negative weight change is desired. It may further prove beneficial to provide a sports training device that emits an audible sound or visual clue only until completion of a full weight transfer event and remains silent or ceases its clue emission after the completion of the full weight transfer event and therefore after a ball striking or throwing event.

SUMMARY OF THE INVENTION

The present invention provides a sports training device that conveys a perceptible cue indicative of a weight transfer event for evaluating timing correctness of such weight transfer event. The device includes an enclosure having a base chamber defined therein and a generally planar top wall upon which a user stands during use. The enclosure flexes or deforms during use, while an amount of user weight supported by the enclosure changes. As the enclosure flexes or deforms, the device conveys the perceptible cue as an audible and/or visual indication of, e.g., the initiate of the weight transfer event. Doing so may illuminate a light or other visual

display or emit a sound from the device. Doing so may also change a volume of the base chamber which forces air through a valve that is connected to the base chamber and correspondingly forces air either into or out of the base chamber, depending on whether the volume is increasing or decreasing in size. The air flowing through the valve may establish the audible cue that is indicative of the weight transfer event.

According to one aspect of the invention, a sports training device is provided that has a flexible enclosure defining a base chamber therein and having a generally planar top wall that is configured to receive a user's foot thereupon during use. The enclosure deforms in shape in response to a changing application of user weight thereto. Such shape deformations of the enclosure correspondingly change a volume of a void space of the base chamber. A valve is connected to the enclosure and is fluidly coupled to the base chamber, the valve being configured to emit an audible cue when air flows therethrough. The changing volume of the void space of the base chamber establishes an airflow through the valve so as to emit the audible cue in response to the changing application of user weight to the flexible enclosure.

In another aspect of the invention, the changing application of user weight to the flexible enclosure corresponds to a weight transfer event in which a majority of the user's weight is transferred from one of the user's feet to the other one of the user's feet.

According to another aspect of the invention, the enclosure may be collapsible under weight applied by the user thereof to expel air out of the base chamber and through the valve. The enclosure may also be expandable upon removal of the user's weight to draw air into the base chamber and through the valve. The air may flow through the valve in a first direction while expelling air out of the base chamber and the air flows through the valving in a second, opposite direction while drawing air into the base chamber.

According to yet another aspect of the invention, the enclosure includes an expanded chamber that is connected to the base chamber. The expanded chamber may have at least one of a larger height and a larger cross-sectional area, when compared to the height and cross-sectional area of the base chamber.

According to yet another aspect of the invention, the top wall may further include multiple grips that provide a friction interface between the user's foot and the top wall.

According to yet another aspect, the enclosure may have a front wall that houses the valve therein. The front wall can include an upright segment and an angled segment. The valve may be housed in, for example, the angled segment of the front wall. This allows the valve to be positioned angularly with respect to an underlying or supporting ground surface which permits use of a valve having a length that is greater than a height dimension of the enclosure at the particular location of the enclosure at which the valve is mounted or connected to the enclosure.

According to yet another aspect of the invention, the front wall defines at least part of a front side of the expanded chamber.

According to yet further aspects of the invention, the base chamber may include multiple ducts that connect to the expanded chamber. Such ducts can be defined by one or more divider walls that separate the ducts from each other in the base chamber. The divider walls may extend generally orthogonally from the top wall and into the base chamber, and/or may connect the top wall to a bottom wall of the enclosure. The bottom wall may have a lower surface that undulates along at least one of a width and length dimension and sits upon a supporting ground surface. The bottom wall may include multiple grooves that are defined between respective multiple lands which contact a supporting ground surface. One or more of the multiple lands of the bottom wall may have a convex bottom surface.

Accordingly to another aspect of the invention, the enclosure may include upper and lower shells that are connected to each other through a joint. The joint may extend about a major portion of the entire perimeter(s) of the upper and lower shells. The joint can at least partially define a lap-type interface, for example, in which a portion of a sidewall of one of the upper and lower shells overlaps or abuts and is outside of a portion of a sidewall of the other one of the upper and lower shells. The joint may further include various projections, such as inwardly extending lips that provide shoulder surfaces for cooperating edges of the shells to sit against.

According to another aspect of the invention, the top wall may include a ramped portion against which a side of the user's foot abuts during use.

According to another embodiment of the invention, a method of teaching proper weight transfer in a sporting activity is provided, by utilizing a relatively pliant and flat enclosure having a valve mounted therein, the valve being configured to emit an audible cue when air flows therethrough in response to a weight transferring event by a user. The enclosure is secured between a foot of the user foot and an underlying ground surface, such that the user's foot is positioned upon the enclosure. The user performs an athletic maneuver that requires a weight transferring event and an audible cue is emitting from the valve during such weight transferring event. A timing of the emission of the audible cue versus a desired timing of the weight transferring event is evaluated.

BRIEF DESCRIPTION OF THE DRAWINGS

A preferred exemplary embodiment of the invention is illustrated in the accompanying drawings in which like reference characters represent like parts throughout.

FIG. **1** is an isometric view of a first embodiment of a sports training device in accordance with the present invention;

FIG. **2** is a top plan view of the sports training device FIG. **1**;

FIG. **3** is a bottom plan view of the sports training device of FIG. **1**;

FIG. **4** is a front elevation view of the sports training device of FIG. **1**;

FIG. **5** is a side elevation view of the sports training device of FIG. **1**;

FIG. **6** is an exploded isometric view of the sports training device of FIG. **1**

FIG. **7** is side cross-sectional view of the sports training device of FIG. **1**, taken at line **7-7** of FIG. **2**.

FIG. **8** is an isometric view of a lower shell of the sports training device of FIG. **1**.

FIG. **9** is an isometric and enlarged cross-sectional view of a portion of the sports training device of the present invention, taken at the dashed circle **9** of FIG. **1**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Preferred exemplary embodiments of the sports training device of the present invention are illustrated in the accompanying drawings in which like reference numerals represent like parts throughout.

Referring now to the drawings, and initially to FIG. **1**, a sports training device **10** is illustrated which is configured to

emit an audible indication of an occurrence of a foot-to-foot weight transfer event by a user. The sports training device **10** includes an enclosure **12** and a weight transfer indicator, such as indicator assembly **50** that cooperates with the enclosure **12** to emit a cue such as a sound or visual indicator during, and/or otherwise indicate, such a weight transfer event, explained in greater detail elsewhere herein.

Referring now to FIGS. **1-6**, the enclosure **12** includes an upper shell **14** and a lower shell **16**, surrounding an interior void space. The interior void space includes a base chamber **18** and an expanded chamber **20** that collectively occupy the volume defined within the inwardly facing surfaces of the upper and lower shells **14**, **16**. Although the enclosure **12** is described in terms of an upper shell **14** and a lower shell **16** as being discrete components that are joined to form the enclosure **12** that surrounds the void interior of the base and expanded chambers **20**, this is done as a matter of convenience of description noting that the upper and lower shells **14**, **16** can, of course, be portions of a single unitary or continuous structure. Accordingly, whether incorporated into a single or multiple component enclosure **12**, the upper and lower shells **14**, **16** are defined by respective ones (or portions) of a top wall **22**, bottom wall **24**, front wall **26**, back wall **28**, and sidewalls **30**, **32** that are connected to each other in the complete assemblage of the enclosure **12**.

Referring now to FIGS. **1**, **2**, and **6**, top wall **22** is contoured to receive a user's shoe-clad foot across the length thereof Multiple grips **34** are located on an upper surface of the top wall **22**. The grips **34** are configured to provide the user's foot with increased frictional engagement when the sports training device **10** is in use. As illustrated in FIG. **1**, the grips **34** may be integral with the top surface **22**, and may be comprised of raised rubber. However, any material or orientation capable of increasing the frictional engagement of the user's foot and the top surface **22** may be incorporated.

Referring now to FIGS. **1** and **5**, located at the ends of the top wall **22**, and extending downwardly therefrom, are the sidewalls **30**, **32** of the enclosure **12**. In this configuration, the sidewalls **30**, **32** define a length dimension of the device **10** therebetween and are located adjacent to the user's heel and toes, respectively, during use. The sidewalls **30** and **32** are substantially mirror images of each other, whereby only description of sidewall **30** is made here, noting that it is applicable to sidewall **32** by analogy. Seen best in FIG. **5**, when viewed from the side, sidewall **30** defines a rectangular back segment and a ramped or angled front segment. A height dimension of the sidewall's **30** back segment corresponds closely to a height dimension of the base chamber **18**, noting that an inwardly facing surface of sidewall **30** defines an outer boundary of the chamber **18**.

Referring still to FIGS. **1** and **5**, the height of the sidewall **30** is substantially less than the overall width and/or length(s) of the device **10**, giving the chamber **18** and device **10** a generally thin and flat configuration. For example, the height of the sidewall's **30** back segment can be about 1/10 of the width of the device **10** (or less than 1/10) and 1/20 of the length of the device **10** (or less than 1/20). A height dimension of the sidewall's **30** angled front segment corresponds closely to a height dimension of the expanded chamber **20** which abuts the inwardly facing surface of the angled front segment. The embodiment of FIG. **5** has an angled front segment of sidewall **30** that is somewhat triangular, with converging angled segments that join at a greatest height portion. At its greatest height portion, the angled front segment of sidewall **30** is nearly twice as tall as the height of the back portion, for example, being at least about 1.5 times the height thereof. Accordingly, the expanded chamber **20** may be a portion of the device's **10** interior void space that increases in height with respect to the base chamber **18**, but need not indicate or require that the volume of the expanded chamber **20** is larger than the volume of the base chamber **18**, which it may or may not be, depending on the overall desired configuration of the device.

Referring now to FIGS. **1**, **4**, and **6**, regardless of the particular configurations of sidewalls **30** and **32**, they span across the width of the enclosure **12**, at its ends, connecting the front and back walls **26**, **28** to each other. In the illustrated embodiments, the device **10** is unidirectional, such that the front wall **26** is configured for placement adjacent an outside (or leading side) of a user's (leading or other) foot. However, since the device **10** is symmetrical about a line extending transversely across its width and midway along its length, the device **10** can be placed under and used with either the right foot or the left foot of the user.

The front wall **26** extends in a slight arcuate path between the sidewalls **30** and **32**, defining a convex surface at the front of the enclosure **12**. Front wall **26** includes an upright or generally vertical lower segment and an angled upper segment **36** that extends toward a remainder of the device **10**. A top edge of the upper segment **36** is connected to the ramped segment **38** of the top wall **22** which extends away from such point of connection and has an opposing angle of inclination, when compared to that of upper segment **36** of the front wall **26**. In other words, the ramped and angled segments **38** and **36** of the top and front walls **22** and **26**, respectively, angle toward and connect to each other to define surfaces that correspond to the triangular-like ramped or angled front segments of the sidewalls **30**, **32**. In this regard, the angled segment **38** of the top wall **22** provides an abutment surface against which the user places an outside of his or her foot during use. Furthermore, the ramped and angled segments **38** and **36** of the top and front walls **22** and **26** overlie and define an uppermost perimeter of the expanded chamber **20**. Accordingly, since the ramped and angled segments **38** and **36** of the top and front walls **22** and **26** rise upwardly from the remainder of top wall **22**, intuitively, the expanded chamber **20** defines an area of at least one of an increased internal void height, cross-sectional area, and/or volume, relative to the base chamber **18**.

Referring again to FIG. **1**, back wall **28** extends downwardly from a back edge of the top wall **22** and in a slight arcuate path between the other ends of sidewalls **30** and **32**. The back wall **28** is substantially parallel to the front wall **26**, such that the back wall **28** defines a concave back surface of the enclosure **12**. The bottom edge of back wall **28** is wavy or undulating in a manner that corresponds to the surface configurations of bottom wall **24**, explained in greater detail elsewhere herein.

Referring now to FIGS. **1** and **6-9**, the front and back walls **26**, **28** and the sidewalls **30**, **32** can each be a single unitary structure or can be an assemblage of multiple segments that are connected to each other, such as in the embodiments of enclosure **12** that include upper and lower shells **12**, **14** that are joined together. Stated another way, the joint between the upper and lower shells **12** and **14** can be provided along the outer perimeter of the enclosure **12**, extending through the front and back walls **26**, **28** and the sidewalls **30**, **32**, in series. FIG. **9** shows a close-up view of a preferred configuration of an exemplary joint and will explained with respect to sidewall **30**, while noting that such discussion is equally applicable to sidewall **32** and also the front and back walls **26**, **28** which can have the same joint configuration and/or profile. Joint **48** connects the upper and lower shells **14**, **16** to each other, partway up the height of the sidewall **30**, by connecting upper

segments **30***a*, **32***a* of sidewalls **30**, **32** to lower segments **30***b*, **32***b* of sidewalls **30**, **32** (FIG. **8**). The joint **48** has a step-like configuration and preferably defines a lapping interface between the upper and lower shells **14**, **16**. Seen best in FIG. **9**, the joint **48** includes part of the lower segment **30***a* that is outside of, overlapping an abutting, part of the upper segment **30***b*. Lower segment **30***a* further includes a lip that projects into the interior space of the enclosure **12**, defining an upwardly facing shoulder that supports a downwardly facing surface of the upper segments **30***b*. Joint **48** may include various other projections and/or interlocking structures, depending on the particular desired end configuration of the enclosure **12**, that allow the joint **48** to suitably connect the respective upper and lower segments **30***a*, **32***a*, and **30***b*, **32***b* in a manner that allows the front and back walls **26**, **28**, and the sidewalls **30**, **32** to connect the upper wall **22** to the bottom wall **24** at their respective perimeter edges. As illustrated in FIG. **3** from below the bottom wall **24**, a downwardly facing surface of the bottom wall **24** includes a plurality of grooves **40** extending across at least a portion of its width and a plurality of elevated lands **40** separating each of the grooves **40**. The lands **42** are configured to provide increased frictional engagement between the sports training device **10** and the ground during use, and are positioned perpendicular to a longitudinal axis of the user's foot. The grooves **40** and lands **42** may extend across the entire width of the bottom wall **24**, or alternatively, the grooves **40** and the lands **42** may extend across the width of the bottom wall **24** from the rear wall **28** to the expanded chamber **20**.

Turning now to FIGS. **6-9**, an upper surface of the bottom wall **24** defines a lower perimeter of the base chamber **18** and the base chamber **18**, itself, can include multiple concave ducts **44** that are separated from each other by divider walls **46**, which guide or direct airflows through the ducts **44**, toward the expanded chamber **20** and thus also toward valve **58**. The divider walls **46** are formed of vertical extensions originating from the grooves **40** of the bottom wall **24** and engaging the interior surface of the upper shell **16**, whereby the divider walls **46** connect the top and bottom walls **22**, **24** to each other.

In this configuration, each of the ducts **44** is separated transversely from the adjacent ducts **44** by the divider walls **46** and is sealed at a back end by the back wall **28**. At the other or front end of each of the ducts **44**, the duct **44** opens into the expanded chamber **20**. Accordingly, the divider walls **46** and ducts **44** therebetween ensure that air flowing through the base chamber **18** is restricted to flow directions that correspond to the width of the enclosure **12**, whereby air will not spill or otherwise flow between adjacent ducts **44** in a lengthwise direct of the enclosure **12**. Since the ducts **44** and divider walls **46** end at the expanded chamber **20**, the base chamber **18** is in fluid communication with the indicator assembly **50** by way of the intervening expanded chamber **20**.

As illustrated in FIGS. **1**, **2**, **4**, and **7**, the indicator assembly **50** is provided in the front wall **26** of these embodiments, noting that indicator assembly **50** can be provided elsewhere within the device **10**, as long as the enclosure **12** and indicator assembly **50** can suitably cooperate to emit an audible sound or other perceptible indicator or cue in response to changing weight application to the enclosure **12**. For example, in some embodiments, the indicator assembly **50** is provided in one or both of the ramped and angled segments **39** and **36**, and/or elsewhere within the enclosure **12**.

The location of the indicator assembly **50** is influenced by the particular configuration of the indicator assembly **50** and the intended functionality, for example, when or in response to what stimulus the indicator assembly **50** will emit an audible signal. In some embodiments, indicator assembly **50** is configured to emit an audible sound in response to any changing weight application to the enclosure **12**, such that with a user standing on the device **10**, an audible cue is produced anytime that the user shifts more or less of his or her weight onto or from the foot in contact with the sports training device **10**. In some embodiments, after a user is standing on the device **10**, the indicator assembly **50** only emits sound when the device **10** experiences an increase in pressure or user weight applied thereto. In yet other embodiments, the indicator assembly **50** is configured to only emit sound when the device **10** experiences a decrease in pressure or use weight applied thereto.

In some embodiments, the indicator assembly **50** is an electronic system that includes, e.g., one or more pressure sensors or mechanical switches that mounted proximate the top or front walls **22**, **26** or elsewhere, so long as they are positioned and configured to sense or be actuated by the predetermined stimulus, such as (i) any changes in pressure or weight application to the enclosure **12**, (ii) increases in pressure or weight application to the enclosure **12**, and/or (iii) decreases in pressure or weight application to the enclosure **12**. Such sensors or switches send a corresponding signal, indicative of such a weight transfer event, to a speaker, buzzer, or other suitable sound device for emitting a corresponding audible sound indication of such event, optionally to an optical device, such as a bulb or other illuminating device, for visually indicating the same, if so desired. Such electronic system further includes cooperating components that are known to those skilled in the art, such as, e.g., batteries or other power supplies, electrical conductors that connect the various components, and other requisite circuit components that may be integrally incorporated into one or more integrated circuits. The electronic system can also be microprocessor based, whereby it includes various suitable computing resource(s) such as, for example, inputs and outputs that are operably connected to a memory device and a microprocessor with an operating system that is configured to perform the desired audible or visually conspicuous emissions that indicate weight transfer events of the user.

Still referring to FIGS. **1**, **2**, **4**, and **7**, the indicator assembly **50** is preferably configured to emit an audibly perceptible cue. In these embodiments, the indicator assembly **50** is configured as a pneumatic sound generating device and includes a bidirectional (or other) air valve **58** that is mounted at a central location upon the front wall **26** and in fluid communication with the base chamber **18** by way of the expanded chamber **20**. Valve **58** may be a pneumatic valve which is at least somewhat similar to the kind generally known in the art, being also configured to emit an audibly conspicuous sound when air flows therethrough. The emission of this sound corresponds to the transfer of air through valve **58**, and is accordingly triggered by the user changing the amount of weight or force applied to the sports training device **10** by the overlying foot. In this configuration, the sound emission of the sports training device **10** provides an audible cue to the user thereof. The audible cue allows the user or the user's instructor to evaluate the user's weight transfer timing, especially with respect to the dynamic golf swing components.

Referring yet further to FIGS. **1**, **2**, **4**, and **7**, valve **58** can be configured such that it emits an audible cue when either a positive or negative weight change is applied to the sports training device **10**, optionally, during only one airflow direction. In other words, the valve **58** could be configured such that with a user standing on the device **10**, no audible cue is produced unless the user shifts more or less of his or her weight onto the foot in contact with the sports training device

10. In other embodiments, after a user is standing on the device 10, the valve 58 only emits sound when the device 10 experiences an increase in pressure applied thereto. In yet other embodiments, the valve 58 is configured to only emit sound when the device 10 experiences a decrease in pressure applied thereto.

With respect to a golf swing, a preferred configuration of valve 58 may be the one in which an audible cue is emitted when either a positive or negative weight change is applied to the sports training device 10. Accordingly, this valve 58 configuration would be used when the goal is to achieve a swing wherein the user receives an audible cue only during the downswing, prior to striking the ball. Specifically, when the user shifts his or her weight to his or her back foot during the takeaway and backswing, the user's front foot should be relatively stable on the sports training device 10 thereby resulting in the absence of any audible cue until just prior to the finish of the backswing. Once the user's weight begins to shift from his or her back foot and the downswing starts, there should be an immediate audible cue. Prior to impact, all audible cue should end and have no further cues through to completion of the swing. At this point, the user's weight has been transferred to the front foot; the player would pivot around the forward weight bearing leg and impact the ball. The weight should then remain bearing on the forward foot during the follow-through and into the completion of the swing, without adding additional weight to the foot contacting the sports training device 10.

The sports training device 10 of the present invention may be utilized in a variety of different sports including, but not limited to, golf, baseball, football, and tennis. The device 10 of the present invention may be utilized as a training device in any sport that requires a user-initiated weight transfer similar to the aforementioned sports.

Many changes and modifications may be made to the present invention without departing from the spirit thereof. For example, in some implementations, the device 10 can be configured to selectively or removably fix, attach, or anchor to the ground. Such removably anchoring functionality can be accomplished in any of a variety of suitable ways, including but not limited to, (i) molding or otherwise providing a throughbore vertically through the device 10 that can accept a spike and/or other anchoring device therethrough, (ii) molding or otherwise providing a tab that extends from the outer perimeter of the device 10 and lies upon the ground, the tab having a throughbore or other suitable spike and/or anchoring device accepting structure(s), and/or (iii) molding or otherwise providing an integral spike and/or anchoring device that always remains attached to the device 10, for example, as a downwardly directed claw-type structure that can penetrate the ground. The scope of some of these changes is discussed above. The scope of others will become apparent from the appended claims.

What is claimed is:

1. A sports training device comprising:

a flexible enclosure defining a base chamber therein and having a generally planar top wall that is configured to receive a user's foot thereupon during use, the enclosure deforming in shape in response to a changing application of user weight thereto, such that the shape deformations of the enclosure correspondingly change a volume of a void space of the base chamber; and

indicator assembly connected to the enclosure and being configured to convey a perceptible cue to a user in response to a changing application of user weight to the flexible enclosure, the indicator assembly further comprising a valve that is fluidly coupled to the base chamber, the valve being configured to emit an audible cue when air flows therethrough, and wherein the changing volume of the void space of the base chamber establishes an airflow through the valve so as to emit the audible cue.

2. The sports training device of claim 1, wherein the enclosure is collapsible under weight applied by the user thereof to expel air out of the base chamber and through the valve and wherein the enclosure is expandable upon removal of the user's weight to draw air into the base chamber and through the valve.

3. The sports training device of claim 2, wherein the air flows through the valve in a first direction while expelling air out of the base chamber and the air flows through the valving in a second, opposite direction while drawing air into the base chamber.

4. The sports training device of claim 1, the enclosure further comprising an expanded chamber connected to the base chamber, the expanded chamber having at least one of a larger height and a larger cross-sectional area with respect to the base chamber.

5. The sports training device of claim 4, the top wall further comprising multiple grips providing a friction interface between the user's foot and the top wall.

6. The sports training device of claim 4, the enclosure further comprising a front wall housing the valve therein.

7. The sports training device of claim 6, the front wall further comprising an upright segment and an angled segment, and wherein the valve is housed in the angled segment of the front wall.

8. The sports training device of claim 6, the front wall defining a front side of the expanded chamber.

9. The sports training device of claim 4, the base chamber further comprising multiple ducts that connect to the expanded chamber.

10. The sports training device of claim 9, the enclosure further comprising multiple divider walls that separate the ducts from each other in the base chamber.

11. The sports training device of claim 9, wherein the divider walls extend generally orthogonally from the top wall and into the base chamber.

12. The sports training device of claim 11, wherein the divider walls connect a bottom wall of the enclosure to the top wall of the enclosure.

13. The sports training device of claim 2, the enclosure further comprising a bottom wall having a lower surface that undulates along at least one of a width and length dimension and sits upon a supporting ground surface.

14. A sports training device comprising:

a flexible enclosure defining a base chamber therein and having a generally planar top wall that is configured to receive a user's foot thereupon during use, the enclosure deforming in shape in response to a changing application of user weight thereto, such that the shape deformations of the enclosure correspondingly change a volume of a void space of the base chamber; and

indicator assembly connected to the enclosure and being configured to convey a perceptible cue to a user in response to a changing application of user weight to the flexible enclosure, the enclosure further comprising a bottom wall having a lower surface that undulates along at least one of a width and length dimension and sits upon a supporting ground surface, and the bottom wall having multiple grooves defined between corresponding multiple lands which contact a supporting ground surface.

15. The sports training device of claim 14, each of the multiple lands further comprising a convex bottom surface.

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